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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,751	03/30/2005	Susumu Kayama	Q72256	1597
23373 7590 12/09/2009 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER BARTON, JEFFREY THOMAS				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
12/09/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
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## Office Action Summary

**Application No.**

10/529,751

**Applicant(s)**

KAYAMA ET AL.

**Examiner**

Jeffrey T. Barton

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 9-16 and 23 is/are pending in the application.  
4a) Of the above claim(s) 1 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 is/are rejected.
- 7) ☒ Claim(s) 3, 9-15 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on 24 July 2009 does not place the application in condition for allowance.

### ***Status of Rejections Pending Since the Office Action of 24 March 2009***

2. The rejection of claim 2 under 35 U.S.C. §102(b) as anticipated by Bégin-Colin et al. is maintained.
3. All other rejections are withdrawn.

### ***Election/Restrictions***

4. Applicant elected Species B with traverse in the telephone conversation of 10 February 2009. Applicant acknowledged this election in the response of 24 July 2009. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
5. Claims 1 and 16 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 24 July 2009.

### ***Claim Objections***

6. Claims 2, 3, 9-15 and 23 are objected to because of the following informalities:

In line 10 of claims 2 and 3, the term "by mass" should be added after the ratio "30/70" in order to clarify the manner in which the ratio is determined, and to match the teaching of the instant specification given at page 12, lines 19-21. Claims 9-15 and 23 include all limitations of claim 3, by virtue of their dependence therefrom. Thus, they are objected to for the same reason.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Bégin-Colin et al.

Bégin-Colin et al. discloses a method comprising dry-mixing a metal oxide (Anatase titanium oxide) such that the anatase phase is converted to rutile. (Experimental Details section; Figure 1) As described in Fujimori (Column 9, lines 50-55), the bandgap of anatase is 3.2 eV, while that of rutile is 3.0 eV. BG0-BG1 is therefore approximately 0.2 eV, corresponding to the range instantly claimed, and the product rutile powder reads on the structure of claim 2. Note that undue weight cannot be given to the newly added limitations "wherein the raw material metal oxide . . . 5/95 to 30/70" because these define only structure of the raw material that is processed to

form the product. No explicit structural limitation of the claimed product is seen to be provided by such recitation, and the product taught by Bégin-Colin et al. is therefore considered to anticipate the claimed product oxide structure.

***Allowable Subject Matter***

9. Claims 3, 9-15, and 23 are objected to for the reasons given above, but will be allowable if the objection is overcome.
10. The following is a statement of reasons for the indication of allowable subject matter:

As shown in Figure 4 of Bégin-Colin et al, particles falling within both of the instantly claimed Particle Groups A and B are present in their raw material oxide powder. However, as can be seen from the relative areas under the curve d between diameters of 10-40 nm and 100-500 nm, the volume percentage of these respective populations corresponds to an excess volume of particles of 100-500 nm diameter versus those of 10-40 nm diameter, such that the mixture clearly does not correspond to the instant 5/95 to 30/70 ratio of Group A/Group B particles by mass. Since the prior art does not recognize the advantages of such ratios within the detailed ball milling method also claimed (Disclosed by Applicant at Page 11, line 5 - Page 13, line 5 and in Examples 1-3), the claims are considered to be patentably distinguished from the prior art of record.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey T. Barton whose telephone number is (571)272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey T. Barton/  
Primary Examiner, Art Unit 1795  
4 December 2009